

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF – JANUARY 29-30, 2015

Prepared on January 9, 2015

ITEM NUMBER: 16

SUBJECT: **Irrigated Lands Regulatory Program – Water Board Review of the Manner in Which Central Coast Groundwater Coalition Groundwater Testing Results are Disclosed to the Public**

STAFF CONTACT: Angela Schroeter 805/542-4644, Angela.Schroeter@waterboards.ca.gov
John Robertson 805/542-4630, John.Robertson@waterboards.ca.gov

KEY INFORMATION:

Location: Region-Wide
Type of Discharge: Irrigated Lands Runoff / Leaching to Groundwater
Existing Orders: Order No. RB3-2012-0011 and WQ 2013-0101

THIS ACTION: **Board Review of Staff's Recommendation Regarding the Manner in Which Central Coast Groundwater Coalition Groundwater Testing Results are Disclosed to the Public**

SUMMARY

This item provides analysis and discussion regarding the manner in which Central Coast Groundwater Coalition (CCGC) groundwater testing results are disclosed to the public. Discussion of this item and any subsequent direction from the Board is intended to satisfy the July 3, 2014 California Rural Legal Assistance (CRLA) request for discretionary review of the CCGC groundwater monitoring program (Attachment 1).

On July 11, 2013, the Executive Officer issued a letter approving the CCGC Workplan (Workplan Approval letter, Attachment 2). The Workplan Approval letter specifies how CCGC information will be disclosed to the public, including a process for assessing the ability of CCGC to develop groundwater nitrate concentration contour maps as a detailed and accurate visual display of individual well data, in lieu of displaying the actual data to the public on the Water Board's online data management system GeoTracker GAMA. In their July 3, 2014 letter, CRLA states that contour mapping should supplement, not substitute for the display of data on GeoTracker GAMA. The purpose of Item 16 is to present staff's response and recommendations regarding the CRLA request for discretionary review of the manner in which the groundwater testing results of CCGC will be disclosed to the public.

The question before the Board is:

Whether the Board wishes to make changes to the process for reviewing and approving CCGC contour maps, as established in the CCGC Workplan Approval letter.

As individual growers and the CCGC implement the groundwater monitoring requirements of Agricultural Order R3-2012-0011 as modified by State Water Resources Control Board (State Board) Order WQ-2013-0101, the potential severity and urgency of the health issues associated

with drinking water with unsafe nitrate concentrations continues to be a high priority for the Central Coast Water Board. Consequently, the manner in which groundwater data, including the CCGC groundwater testing results, are accessible to the public is an important aspect of the Irrigated Lands Regulatory Program (ILRP). Stakeholders using ILRP groundwater data include state and local water agencies, state and local public health agencies, universities and research organizations, groundwater remediation and drinking water treatment organizations, agricultural community, environmental justice organizations, domestic well users and the public.

Agricultural Order R3-2012-0011 and associated MRPs require growers to conduct individual or cooperative groundwater monitoring. Growers who conduct individual and cooperative groundwater monitoring must both submit data electronically to the Water Board's GeoTracker data management system. However, the public availability of information for growers who choose to comply with groundwater monitoring requirements as individuals is different than for growers who participate in the CCGC. Per the CCGC Workplan Approval letter, the CCGC can submit contour maps to display nitrate concentration to the public, in lieu of displaying individual well data – if the contour maps meet specific criteria and are approved by the Executive Officer. More specifically, the contour maps must meet Conditions 10 through 13 of the Workplan Approval letter described later in this staff report.

Staff have reviewed CRLA's request for discretionary review concerning the use of contour maps and concluded that the Workplan Approval letter set up an appropriate process for assessing the ability of CCGC to provide a detailed and accurate visual display of individual well data (contour maps). Staff does not recommend changing the Workplan Approval letter. That is the sole issue before the Board's discretionary review.¹

The remainder of this staff report explains the next steps staff intends to take to carry out the process set up in the Workplan Approval letter. This information is provided to the Board as important background which is helpful in the evaluation of CRLA's request for discretionary review. The State Water Board's Order WQ-2013-0101 does not explicitly allow interested persons to request discretionary review of the current actions, but the Board has general authority to provide direction or review the actions of the Executive Officer. The Board may provide feedback as part of discussion concerning this informational item, but the actions staff is currently taking as directed by the Workplan Approval letter are not part of the request for discretionary review.

Based on an evaluation of the CCGC groundwater nitrate concentration contour maps for the Salinas Valley submitted on April 30, 2014, and December 10, 2014, and based upon an evaluation of Part 2 of CRLA's discretionary review request, staff finds that the CCGC contour maps are highly interpretive and in many areas do not provide the public with a precise or accurate representation of groundwater quality. The Workplan Approval letter states that in the event the "Executive Officer determines that the contour map does not present the data within an adequate confidence interval that is acceptable for providing reliable information to the public, the Executive Officer may not approve the use of the contour map on GeoTracker." The Workplan Approval letter further provides that if the contour maps do not "meet Conditions 10 through 13 above, then the data will be displayed as individual wells on GeoTracker and the well location and data will only be referenced within a one-mile square of the actual well location".

For these reasons, if the Board concurs that the CCGC Workplan Approval process concerning contour maps is appropriate, the Executive Officer will follow the Workplan Approval letter and

¹ See Attachment 1, CRLA July 3, 2014, letter requesting discretionary review of "the manner in which the groundwater testing results of CCGC will be disclosed to the public."

display the data as individual wells on GeoTracker GAMA. Consistent with the reporting of drinking water wells on GeoTracker, well location and data will only be displayed within a one-half mile radius of the actual well location. Staff additionally recommends that the Executive Officer allow the individual well to be identified with the CCGC well identification number rather than displaying individual farm information for CCGC members.

In summary, staff have reviewed CRLA's request for discretionary review concerning the use of contour maps and concluded that the Workplan Approval letter establishes an appropriate process for assessing the ability of CCGC to provide a detailed and accurate visual display of individual well data (contour maps). Staff does not recommend changing the CCGC Workplan Approval letter. That is the sole issue before the Board's discretionary review.

If the Board concurs with staff's conclusion that the process specified in the CCGC Workplan Approval letter is appropriate, the Executive Officer will send a letter to all interested parties that memorializes the conclusion of discretionary review.

Additionally, staff invites the Board's feedback on the following next steps below. The Board's feedback on these items is useful to staff in moving forward, but is not part of the discretionary review.

1. *Staff has determined that the CCGC contour maps of nitrate concentration in groundwater do not provide sufficiently reliable information to the public and other stakeholders, in lieu of providing actual groundwater data. Specifically, the contour maps do not meet Conditions 10 through 13 of the Workplan Approval letter;*
2. *As described in the Workplan Approval letter, staff intends to post individual well location and data within a one-half mile radius of the actual well location, and*
3. *Staff plans to identify individual wells with the CCGC identification number, rather than displaying individual farm information.*

DISCUSSION

Both the Agricultural Order R3-2012-0011 and State Board Order WQ-2013-0101 emphasize the importance of groundwater monitoring data reported in compliance with the Agricultural Order due to widespread impairment of drinking water sourced from groundwater in portions of the Central Coast. The Agricultural Order requires groundwater monitoring of agricultural and domestic drinking water wells to characterize groundwater quality in agricultural areas, and to identify and prioritize areas and individual farms that are at greater risk for discharge and pollutant loading, and to inform those domestic well users who may be affected by poor drinking water quality.² The Central Coast Water Board also stated that the shallow or intermediate groundwater depths of agricultural and domestic drinking water wells may provide shorter-term indicators of impacts from agricultural discharges.³

In State Board Order WQ-2013-0101, the State Board asserted that "because the data to be generated through groundwater monitoring is of significant public interest and value, we also find that it is appropriate to provide for discretionary Central Coast Water Board review of Executive Officer approvals or denials of cooperative groundwater monitoring programs, if requested by an interested person"⁴. State Board Order WQ-2013-0101 also recognized "the

² Central Coast Water Board Order R3-2012-0011, page 24, Condition 51, http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/ag_order/agorder_final_011014.pdf

³ State Board Order WQ-2013-0101, page 30.

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2013/wqo2013_0101.pdf

⁴ *Ibid.*, page 32.

need to be wary of third party programs that report compliance at too high a level of generality" and stated that "aggregate monitoring and reporting must be on a scale sufficient to track progress in small sub-basins and be sufficiently representative of conditions in the sub-basins."⁵

Guidance from Relevant Policies

In addition to Agricultural Order R3-2012-0011 and State Board Order WQ-2013-0101, the following is a list of relevant policies that address nitrate in groundwater and providing data to the public.

- Water Code section 106.3, the Human Right to Water Law, September 2012. The California Water Code requires the Water Board to consider how state actions impact the human right to water and creates a state policy priority that directs the Water Board and other state agencies to explicitly consider the human right to water when revising, adopting, or establishing policies, regulations, and grant criteria when those policies, regulations, and grant criteria affect the human right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.
http://www.leginfo.ca.gov/pub/11-12/bill/asm/ab_0651-0700/ab_685_bill_20120925_chaptered.pdf
- State Water Board Report to the Legislature – "Recommendations for Addressing Nitrate in Groundwater", February 2013. Report found that inconsistency and inaccessibility of data prevent effective and continuous assessment of California's groundwater quality, and that a statewide effort is needed to integrate diverse water-related data-collection activities by many state and local agencies, especially related to nitrate. Report recommends data integration across departments and agencies, and making groundwater quality monitoring data publicly accessible, when possible, on the groundwater information system developed for the State Water Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program called GeoTracker GAMA.
http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf
- State Water Board Report to the Legislature - "Public Accessibility to Information About Groundwater Conditions", December 2010. Report recommends that Water Boards continue to use GeoTracker GAMA as the system that makes available to the public information on California's groundwater quality and related information.
http://www.waterboards.ca.gov/gama/docs/leg_rpt/groundwater2010.pdf
- Water Board 2008-2012 Strategic Plan Update, September 2008. Goal 5 (Transparency and Accountability) is to maintain a publicly-accessible, statewide system to display all water quality data used for planning and decision-making.
http://www.waterboards.ca.gov/water_issues/hot_topics/strategic_plan/docs/final_draft_strategic_plan_update_090208.pdf
- Water Board's California Public Records Act Guidelines, May 2005. Guidelines state that it is the Water Boards' policy to provide all members of the public broad and convenient access to its records and to promptly make the fullest possible disclosure of its records.
http://www.waterboards.ca.gov/resources/public_records/public_recordsact_guidelines.pdf
- Water Board's Policy for the Implementation and Enforcement of the Nonpoint Source (NPS) Pollution Control Program, May 2004. Policy provides guidelines for implementation of third-

⁵ Ibid., page 13 and fn.37.

party NPS control programs to successfully prevent or control discharges of nonpoint sources of pollution, and ultimately protect the beneficial uses of the State's waters. The Policy states that NPS monitoring programs should be reproducible, provide a permanent/documented record and be available to the public.

http://www.waterboards.ca.gov/water_issues/programs/nps/docs/plans_policies/nps_iepolicy.pdf

Cooperative Groundwater Monitoring Program Requirements

The Agricultural Order and MRPs state that groundwater quality data must be submitted in a format compatible with the electronic deliverable format used by the State Board's GeoTracker data management system⁶. While growers who conduct individual and cooperative groundwater monitoring must submit data in the same way, the public availability of information for growers who choose to comply with groundwater monitoring requirements as individuals is different than for growers who participate in the CCGC. Table 1 is a comparison of the various methods to provide access to groundwater data to the public for growers enrolled in the ILRP (individual and CCGC), as well as the methods used by other groundwater programs (i.e., underground tanks and site cleanup cases, landfills, military facilities, etc.) regulated by the Water Board.

For both individual growers and CCGC members, as well as other groundwater programs, all information submitted to the Water Board in compliance with an order is disclosable to the public in response to a Public Records Act Request (PRAR). This enables the requester to receive data that is responsive to the request that is in the possession of the Water Board at a specific point in time. Additionally, all Water Board groundwater programs display groundwater data using the Water Board's GeoTracker GAMA data management system (described in detail later in this staff report).

The most significant difference is that the CCGC can utilize contour maps to display nitrate concentration to the public, in lieu of displaying individual well data – if the contour maps meet criteria specified in the Workplan Approval letter. It is important to clarify that the display of information on GeoTracker GAMA does not make information newly disclosable, as the same information must already be disclosed in response to a PRAR. Additionally, for both individual growers and CCGC members, the Agricultural Order and MRPs protect the precise well location and only allow public disclosure of a blurred well location to within a one-half mile radius of the actual well location⁷, in response to concerns expressed by agricultural stakeholders regarding the protection of public safety and food safety. The blurring is also consistent with the drinking water well location information display in GeoTracker GAMA for other regulatory programs.

As described above, the Workplan Approval letter issued by the Executive Officer states that the contour maps must be capable of providing reliable information to the public and specifies criteria for approving the contour maps in Conditions 10 through 13. The contour map criteria are summarized in Table 2 below. Of primary importance is the ability of the contour maps to provide precise, accurate, and reliable information to the public to make informed decisions related to drinking water quality and safety related to potential health exposure due to unsafe nitrate concentrations. Additionally, stakeholders must have reasonable access to sufficient data to review adequacy of groundwater quality characterization and to review and evaluate the Central Coast Water Board's progress to identify and prioritize areas and individual farms that

⁶ Central Coast Water Board Order R3-2012-0101, p. 27, Condition 63,
http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/ag_order/agorder_final_011014.pdf

⁷ Ibid., p. 28, Condition 65.

are at greater risk for pollutant loading and to inform those domestic well users who may be affected by poor/unsafe drinking water quality.

Table 1.
Comparison of Methods to Provide Access to Groundwater Data to the Public

Methods to Provide Access to Groundwater Data to the Public	GW Programs	Irrigated Lands Regulatory Program	
		Individual	CCGC
Groundwater quality data is submitted to the Water Board electronically using GeoTracker	YES	YES	YES
Specific tabulated data and technical reports available to the public in response to a Public Records Act Request.	YES	YES	YES
Comprehensive groundwater quality data for individual wells available for download using GeoTracker GAMA (e.g. statewide, region, county, groundwater basins/sub-basins).	YES	YES	NO
Compliance monitoring wells displayed on GeoTracker GAMA.	YES	YES	NO
Drinking water wells displayed on GeoTracker GAMA with blurring of well location.	YES	YES	NO
Data viewable on GeoTracker GAMA with other data sources (e.g. CDPH, DPR, USGS)	YES	YES	NO
Data viewable on GeoTracker GAMA with GIS layers (e.g. groundwater basins, hydrogeologic vulnerability layer, assembly and senate districts)	YES	YES	NO
Data viewable on GeoTracker GAMA in response to specific queries (e.g. all wells with MCL Exceedances)	YES	YES	NO
Access to GeoTracker GAMA analytical tools (e.g. water quality trend viewing, proximity determinations)	YES	YES	NO
Groundwater quality contour maps available on GeoTracker GAMA, if approved by Executive Officer.	NO	NO	YES

CCGC Contour Maps of Groundwater Nitrate Concentration

CCGC submitted a Technical Memorandum (Tech Memo) titled "Distribution of Groundwater Nitrate Concentration, Salinas Valley, California" on April 30, 2014, and a revised version (Revised Tech Memo) on December 10, 2014, titled "Groundwater Nitrate, Salinas Valley, California" in response to Water Board comments. Both versions included contour maps displaying groundwater nitrate concentrations that were developed using a geostatistical method called kriging. Kriging is an interpolation technique in which the surrounding measured values are weighted to derive a predicted value for an unmeasured location. Attachment 3 includes the kriged nitrate concentration contour maps and the tabulated summary statistics for both the April 30, 2014 Tech Memo and December 10, 2014 Revised Tech Memo versions submitted by CCGC, as well as a kriged nitrate concentration contour map with individual wells submitted by CCGC on December 30, 2014.

Staff met with CCGC representatives and their consultants on multiple occasions to discuss the status of the nitrate concentration contour maps. Information discussed at CCGC coordination meetings with staff and information presented to the Board at the July and November 2014 Board Meetings was consistent with the Tech Memo and contour maps submitted by CCGC in April 2014. Staff was not aware of the new data interpretation submitted with the Revised Tech Memo and contour maps until it was submitted on December 10, 2014.

The groundwater monitoring data reported to the Central Coast Water Board in compliance with the Agricultural Order may be interpreted visually in a number of different ways depending upon the underlying assumptions and inputs used. Based on an evaluation of the CCGC nitrate concentration contour maps for groundwater in the Salinas Valley submitted on April 30, 2014 and December 10, 2014, in comparison with the actual well data, and based upon an evaluation of Part 2 of CRLA's discretionary review request, staff finds that the CCGC contour maps are highly interpretive and in many areas, do not provide the public with a precise or accurate representation of groundwater quality. This is due, in part, to the lack of existing data and CCGC member wells in some parts of the CCGC program area for the Salinas Valley and the relatively broad range in standard deviation from +/- 2.5 mg/L to +/- 10 mg/L Nitrate as NO₃. Table 2 summarizes the contour map criteria identified in the Workplan Approval letter and the information provided by CCGC.

Table 2.
Summary of CCGC Contour Map Criteria

Contour Map Criteria Identified in July 11, 2013 CCGC Workplan Approval	CCGC Contour Map Submitted April 30, 2014	CCGC Contour Map Submitted Dec. 10, 2014
<p><i>Condition 10:</i> Sampling density, resolution and scale must be sufficient such that individual domestic well owners that reside in agricultural areas within the cooperative groundwater monitoring program boundary can make informed decisions related to their drinking water quality and potential health exposure to nitrate.</p>	<p>Tech Memo accompanying contour map does not include any information to describe well density or to determine if this density is sufficient. Well density on maps appears sparse in some areas.</p>	<p>Revised Tech Memo describes a range in well density from 1 well per 25 acres, to 1 well per 14 acres only for wells where the standard deviation was less than 2.5 mg/L NO₃. The Revised Tech Memo does not describe the well density for all wells. The Revised Tech Memo indicates that the well density values appear generally sufficient for mapping of areas where groundwater is likely to be over the MCL. However, there is no evaluation of whether the well density is sufficient given the spatial variability of the aquifer and specific local conditions.</p>
<p><i>Condition 10:</i> Contour maps must characterize groundwater nitrate concentrations at specific depth, focus on shallow groundwater, and indicate depth represented on the map.</p>	<p>Tech Memo states that data for wells that are shallower than 400 feet are used to develop contour maps, but depth range is not indicated on the contour map.</p>	<p>Contour maps state that wells with depths greater than 400 feet are excluded. Contour maps do not specifically describe the 180 foot aquifer or discreet aquifer zones.</p>
<p><i>Condition 10:</i> The analysis will be performed to achieve the highest level of certainty possible with the wells that are selected for sampling, and the analysis will explicitly provide the confidence value for any location on the</p>	<p>No additional sampling was attempted or suggested to increase confidence or confirm adequacy of contours. CCGC members may have numerous irrigation and drinking water wells on their property. For the Salinas Valley, sampling was</p>	<p>Same as April 30, 2014, version.</p>

<p>map. If the CCGC determines that there are more wells that may be sampled in order to achieve a higher confidence interval, they must immediately inform the Executive Officer and present a plan, including schedule, for additional sampling as appropriate, to be approved by the Executive Officer.</p> <p><i>Condition 11:</i> The CCGC must include additional sampling for use as a validation data set to confirm adequacy of contours.</p>	<p>focused on only domestic drinking water wells – no additional sampling from irrigation wells was attempted to assist with groundwater characterization or development of contour maps. In addition, wells may also exist in the program area that do not belong to CCGC members but are available for sampling. These additional data points could assist to increase confidence or confirm adequacy of contours. CCGC did not bring additional wells to the attention of the Executive Officer.</p>	
<p><i>Condition 11:</i> Any contour maps produced must include the confidence interval for estimated values. Contour map must present the data within an adequate confidence interval that is acceptable for providing reliable information to the public.</p>	<p>Confidence intervals are not addressed in the report or contour maps. Kriged nitrate concentration maps do not include any information regarding range of confidence interval and do not state that contours reflect predicted nitrate concentration. Contour maps do not indicate when data has been excluded from the interpretation.</p>	<p>Kriged nitrate concentration maps are identified as estimated values, but do not include any information regarding range of confidence interval. CCGC excluded data from contour maps for wells greater than 400 feet, in addition to other reasons. For example, data was also excluded due to very high concentrations which CCGC suspects are from a localized contamination site or where data was collected prior to the year 2000. Contour maps indicate data has been excluded from the interpretation only based on depth, but do not identify data excluded for other reasons.</p> <p>Maps are included that display standard deviation of the nitrate concentration contour map, estimated probability of exceeding the drinking water standard, and distribution of nitrate concentration at the 66% and 95% confidence intervals. CCGC consultants describe that the 66% and 95% upper bound maps are produced by adding one or two standard deviations, respectively, to the estimated concentrations, and that this indicates that there is a 66% or 95% confidence level that the actual concentration is between the upper and lower bound concentrations</p>

		However, no confidence intervals are provided relative to the kriged nitrate concentration contour map.
<i>Condition 11:</i> Contour maps should use the State Drinking Water Standard of 45 mg/L Nitrate as NO ₃ and the initial contour intervals must be approximately every 10 mg/L Nitrate as NO ₃ . After reaching the 45 mg/L Nitrate as NO ₃ contour, you may increase the size of the contour interval, if appropriate.	Nitrate concentration contour map includes appropriate contour intervals up to 45 mg/L Nitrate. After 45 mg/L, map only indicates 45-390.5 mg/L. This uppermost contour interval does not appropriately identify areas above the drinking water standard, including maximum concentrations reported as high as 690 mg/L Nitrate as NO ₃ . This lack of information (contour differentiation above 45 mg/L) would provide substantial value.	Same concerns as April 30, 2014 version. After 45 mg/L Nitrate, map indicates a 45-90 mg/L and > 90 mg/L Nitrate range in concentration. The map does not provide adequate data and information for concentrations ranging from 90 – 690 mg/L Nitrate.
<i>Condition 12:</i> The sampling density, resolution and scale must be approved by the Executive Officer, in advance of contour map preparation, to avoid the problem of not having sufficient data to produce an acceptable contour map.	CCGC did not provide specific information regarding sampling density, resolution, and scale to the Executive Officer in advance of the submittal of the contour map, and so none was approved.	CCGC did not provide specific information regarding sampling density, resolution, and scale to the Executive Officer in advance of the submittal of the contour map, and so none was approved.
<i>Condition 12:</i> Contour maps for the cooperative program must be developed by, or under the review of a registered Professional Geologist or Professional Engineer	Contour maps were prepared by Steven Deverel, a registered Professional Geologist in the State of California.	Contour maps were prepared by Steven Deverel, a registered Professional Geologist in the State of California.
<i>Condition 12:</i> Contour maps must be based on a sampling design that is statistically defensible given the spatial variability of the aquifer (i.e., hydrogeological heterogeneity, etc.) and specific local conditions.	Contour maps are based on CCGC sampling and available data, with some data excluded. There is no discussion to evaluate whether the data is sufficient given the spatial variability of the aquifer and specific local conditions.	Same as April 30, 2014, version. Revised Tech Memo does include discussion related to standard deviation.
<i>Condition 12:</i> Contour maps must be provided as a geographic information systems (GIS) shapefile according to a specific time schedule.	CCGC provided GIS files to the Water Board.	GIS files not provided at time the Staff Report was written.
<i>Condition 13:</i> Contour maps must clearly describe the method used to contour the groundwater monitoring data, the associated confidence intervals and the areas of uncertainty.	Contour method used is kriging. Confidence intervals are not included on the map or in the report. Areas of uncertainty are not represented on contour map.	Kriged nitrate concentration maps are identified as estimated values, but do not include any information regarding range of confidence interval. See discussion above.

Contour maps, because of the decision-making that goes into drawing contours where data is sparse, are interpretations of the data. In general, the level of precision and accuracy of such interpretations increases with the amount of data available. In addition, precision and accuracy of such interpretations generally decreases when the hydrogeology is complex or highly variable. The CCGC contour maps provided on April 30, 2014 and December 10, 2014 provide two very different interpretations based upon similar data, and in many cases the contour maps do not coincide with the actual data (see Attachment 3). For example, in areas where there are only a few wells with very different nitrate concentrations and a large distance between wells, the decision regarding how to interpret the contour interval is very subjective. The difference in interpretation is also evident in the tables describing the statistics. The version submitted on April 30, 2014, indicates that the percent of the Salinas Valley map as over the drinking water standard is 58%, while the version submitted on December 10, 2014, indicates only 28% over the drinking water standard. There are similar differences for the statistics reported for the subbasins; for example the Eastside subbasin is reported as 83% and 54%, respectively, over the drinking water standard for the April 30, 2014 and December 10, 2014, versions.

While the Revised Tech Memo for Salinas Valley submitted on December 10, 2014, includes information regarding the probability that wells in certain contours exceed the drinking water standard, the Revised Tech Memo does not provide any information regarding the certainty of the contour maps or the probability that the interpreted results are correct. For example, the CCGC contour maps shown in Attachment 3 include a contour interval of 36 - 45 mg/L Nitrate as NO₃. What is the confidence or probability that a well located in that contour interval actually falls within 36 - 45 mg/L Nitrate as NO₃?

As described above, the groundwater monitoring data reported to the Central Coast Water Board in compliance with the Agricultural Order may be interpreted and presented in a number of different ways. In cases where multiple interpretations are possible, it is important for the public and stakeholders to have access to the underlying data to evaluate the interpretation provided and to validate their own interpretations. Thus, staff concludes that the CCGC contour maps are not acceptable for providing reliable information to the public, in lieu of the actual groundwater data. In many areas, the CCGC contour maps do not provide reliable information so that the public can make informed decisions related to their drinking water quality and potential health exposure to nitrate. Additionally, staff also concludes that the CCGC contour maps do not provide reliable data for stakeholders to review characterizations of groundwater quality. Moreover, the contour maps would make it difficult for the public and other stakeholders to review the Central Coast Water Board's progress in identifying and prioritizing areas and individual farms that are at greater risk for pollutant loading and informing those domestic well users who may be affected by unsafe drinking water quality.

CRLA Request for Discretionary Review

On July 3, 2014, CRLA submitted a request for discretionary review by the Central Coast Water Board on two related issues: 1) CCGC's notification process for wells that have exceeded the nitrate Maximum Contaminant Level (MCL) and 2) the manner in which the groundwater testing results of CCGC will be disclosed to the public. CRLA's July 3, 2014, letter is provided as Attachment 1 to this staff report and also available on the Central Coast Water Board's website for the July 2014 meeting at the following link:

http://www.waterboards.ca.gov/centralcoast/board_info/agendas/2014/july/item13/item13-att6.pdf.

The Water Board completed their review of Part 1 of CRLA's discretionary review request at the November 2014 meeting, culminating in a letter sent to the interested parties on December 8,

2014. This item addresses Part 2 of CRLA's discretionary review request seeking Water Board review of the manner in which CCGC groundwater testing results are disclosed to the public.

CRLA contends that the existing nitrate data highlights “a public health emergency that is widespread and only increasing... [A] whole universe of domestic wells ... have no safety assurances under the law.” In this context, CRLA further contends that the public has a right to readily accessible information about their drinking water without further delay. CRLA also requests that the Central Coast Water Board “prioritize the most direct and efficient display of information so that potential users of contaminated water supply can take proper precautions to protect their health, make informed decisions, and explore solutions.” CRLA states that contour mapping should act as a supplement to specific and individual well water quality information and not as a substitute, for the following reasons:

1. The Porter-Cologne Water Quality Control Act mandates an affirmative obligation that “[m]onitoring results shall be made available to the public.” (Cal Water Code 13269(a)(2)) and the policy of the Central Coast Water Board is “to provide members of the public broad and convenient access to its records and to promptly make the fullest possible disclosure of its records.”
2. There is no legally adequate reason to completely substitute display of individual wells on GeoTracker GAMA with its blurring reference of one-half mile radius of the actual well location, with contour mapping for the duration of the Agricultural Order, which expires in 2017.
3. Public supply wells and monitoring wells are already displayed on GeoTracker GAMA with an appropriate privacy measure. CCGC member wells deserve the same treatment as other wells;
4. It is still uncertain if GeoTracker GAMA has the ability to display approved contour maps and it is also still uncertain what the contour confidence interval will be for the contour mapping.
5. Contour mapping confidence intervals are dependent upon the number of wells sampled and so by design are an indirect way of displaying information. By contrast, GeoTracker GAMA allows for water users to identify with more precision whether they may be consuming water from a contaminated well by referencing concentration of sampling sites in their surrounding area, history of sampling events and exact nitrate concentrations associated with that sampling.
6. Well information displayed on GeoTracker GAMA can aid communities in finding alternate sources of clean drinking water. The technology that is available now through GeoTracker GAMA is both sufficiently protective of privacy concerns and descriptive enough to provide convenient access to the public. There is no justification for substituting GeoTracker GAMA display completely with contour mapping.

CRLA concludes their request for discretionary review by stating that Agricultural Order No. R3-2012-0011 “encourages Dischargers to coordinate the effective implementation of ...cooperative monitoring and reporting efforts to lower costs, maximize effectiveness, and achieve compliance with this Order.” (R3-2012-0011, Finding 11), in other words to lower costs and to maximize effectiveness for the purpose of achieving compliance with the Order rather than to develop an alternative mechanism of reporting.

As presented by staff in previous Board Meetings, the ILRP uses standard tools in GeoTracker GAMA to manage and display groundwater data to the public. To prevent the public from seeing the CCGC data, the Water Board must expend additional staff and contract resources to develop and implement unique firewalls to restrict such access, as such restrictions are not in place for other data. In addition, since the CCGC data is not available for display on GeoTracker GAMA, staff must also expend additional resources to review and respond to Public Records Act Requests for this data and in some cases this results in delays in getting information to the public depending on resources available. To date, staff has reviewed and responded to approximately 55 such requests for data. For other regulatory programs, groundwater data can be downloaded online using GeoTracker GAMA, so it is not necessary for the public to submit PRARs to obtain the data. Maximizing the availability of information to the using GeoTracker GAMA is effective and increases Water Board efficiency in providing broad and convenient access to its records to the public.

GeoTracker GAMA

GeoTracker GAMA is the data management system envisioned by the Groundwater Quality Monitoring Act - AB 599 (Chapter 522, Statutes of 2001). That legislation found that the lack of information about groundwater contamination greatly impairs the ability of regulators, water purveyors, and the public to protect the state's groundwater. AB 599 required the State Board to design a database capable of making groundwater quality information from multiple sources available to the public. GeoTracker GAMA must also include information on groundwater quality and potential sources of contamination, such as underground storage tanks, military facilities, industrial sites, and landfills.

GeoTracker GAMA integrates and geographically displays water quality data from multiple sources through public and secure password-protected web access portals. It has analytical tools and reporting features to assess groundwater quality and identify potential groundwater issues in relationship to roads, satellite imagery, and terrain using Google maps filtered by county, legislative district, groundwater basin, and others. There are a number of reports that allow users to see water quality detections above chemical contaminant thresholds and water level data are also displayed. These data can also be exported for use in other software programs (i.e., Excel).

GeoTracker GAMA infrastructure is flexible to integrate and report on large, complex, scientific datasets from public agencies and private parties. It continues to receive datasets for groundwater quality information as well as potential contaminant sources using GeoTracker's secure Electronic Submission of Information (ESI) module for reporting of laboratory data and reports. GeoTracker GAMA has a regulator side (all data viewable to regulators) and a public side (some data restricted to the public, for example precise well locations). As of 2013, GeoTracker GAMA included over 175 million records integrating 60 million standardized analytical test results for over 200,000 wells from multiple groundwater quality data sets. In addition, GeoTracker GAMA also included more than 2.5 Million depth-to-water measurements from Water Boards cleanup sites and Department of Water Resources water data library. The GeoTracker GAMA website is at the following link:

http://www.waterboards.ca.gov/water_issues/programs/gama/geotracker_gama.shtml

Currently, GeoTracker GAMA publically displays ILRP groundwater data for approximately 2500 individual wells for growers who comply with individual groundwater monitoring requirements, similar to other Water Board programs. As of January 7, 2015, CCGC has sampled approximately 469 groundwater wells in compliance with cooperative groundwater monitoring requirements. At this time, GeoTracker GAMA does not publically display any CCGC well data submitted in compliance with cooperative groundwater monitoring requirements. Currently,

GeoTracker GAMA does not display contour maps for other Water Board programs. In the event that the Executive Officer was to approve contour maps for CCGC, they would be displayed on the public side of GeoTracker GAMA as static images in portable data format (PDF).

CONCLUSION

As individual growers and CCGC implement the groundwater monitoring requirements of the Agricultural Order, the potential severity and urgency of the health issues associated with unsafe drinking water with high concentrations of nitrate continue to be high priorities for the Central Coast Water Board. Similarly, the State Board has concurred that the data generated through groundwater monitoring is of significant public interest and value. Thus, the manner in which groundwater data, including CCGC groundwater testing results, are disclosed to the public is an important aspect of the ILRP.

In conclusion, based upon an evaluation of Part 2 of CRLA's discretionary review request regarding the manner in which CCGC groundwater testing results are disclosed to the public, staff have determined that the Workplan Approval letter set up an appropriate process for assessing the ability of CCGC to provide a detailed and accurate visual display of individual well data (contour maps). In addition, based on an evaluation of the nitrate concentration contour maps for groundwater in the Salinas Valley submitted by CCGC, and staff has determined that the CCGC contour maps are insufficient to provide reliable information to the public and other stakeholders, in lieu of providing actual groundwater data. Moreover, staff have determined that the contour maps would make it difficult for the public and other stakeholders to review the Central Coast Water Board's progress in identifying and prioritizing areas and individual farms that are at greater risk for pollutant loading and informing those domestic well users who may be affected by unsafe drinking water quality. Staff also concurs with CRLA that the public must have easy access to groundwater quality data and information so that potential users of contaminated water supply can take proper precautions to protect their health, make informed decisions, and explore solutions to unsafe levels of nitrate pollution in their drinking water. Given these conclusions, staff does not recommend changing the Workplan Approval letter.

RECOMMENDATION

Staff recommends that the Executive Officer not make any changes to the process for reviewing and approving CCGC contour maps, as established in the Workplan Approval letter. If the Board agrees with staff's conclusion that the process is appropriate, the Executive Officer will send a letter to all interested parties that memorializes the conclusion of discretionary review.

As discussed above, staff invites the Board's feedback on the following next steps:

1. Staff has determined that the CCGC contour maps of nitrate concentration in groundwater do not provide sufficiently reliable information to the public and other stakeholders, in lieu of providing actual groundwater data. Specifically, the contour maps do not meet conditions 10 through 13 of the Workplan Approval letter;
2. As described in the Workplan Approval letter, staff intends to post individual well locations and data. Consistent with the reporting of drinking water wells on GeoTracker, well location and data will only be displayed within a one-half mile radius of the actual well location; and
3. Staff plans to identify individual wells with the CCGC identification number rather than displaying individual farm information.

The Board's feedback on these items is useful to staff in moving forward, but is not part of the request for discretionary review.

Staff's recommendation is consistent with relevant Water Board policies and the Human Right to Water law (Water Code section 106.3), which recognizes the human right to affordable, accessible, acceptable and safe water in every relevant agency decision and activity. In addition, integrating ILRP groundwater data into GeoTracker GAMA allows the public and other stakeholders to analyze the data with nitrate data from other datasets, including the individual monitoring data from ILRP, enabling a more accurate and comprehensive analysis. This recommendation provides specific information to the public regarding nitrate in groundwater, without requiring the public to rely on a specific interpretation of the data. In addition, this option also maintains some anonymity for CCGC members by not disclosing information regarding individual farms.

Discussion of this item and subsequent direction from the Board satisfies the CRLA request for discretionary review of the CCGC groundwater monitoring program and the Executive Officer's Workplan Approval letter as it relates to this issue.

ATTACHMENTS

Attachment 1: CRLA letter Dated July 3, 2014 – Items for Discretionary Review

Attachment 2: Executive Officer letter dated July 11, 2013 - Approval of the Central Coast Cooperative Groundwater Program

Attachment 3: CCGC Contour Maps and Statistics; Kriged nitrate concentration contour map and the tabulated summary statistics submitted by CCGC on April 30, 2014, and revised on December 10, 2014; Kriged nitrate concentration contour map with individual wells submitted by CCGC on December 22, 2014.